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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/605,219

09/16/2003

L. Wynn Herron

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EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/605,219	<b>Applicant(s)</b> HERRON ET AL.	
	<b>Examiner</b> Brian K. Talbot	<b>Art Unit</b> 1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/14/07(RCE).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-9,11-19 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11-19 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/14/07 has been entered.
2. The non-entered amendment filed 11/20/07 has been considered and entered. Claims 3,10,20-23 and 25 have been canceled. Claims 1,2,4-9,11-19 and 24 remain in the application.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2,4-9,11-18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 02-177496 in combination with IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" further in combination with Sullivan (4,647,524).

JP 02-177496 teaches a screen printer process whereby a roller (20) applies cream solder (23) through holes (24) in a screen (11) and onto a printed circuit board (not shown) (abstract and Fig. 2).

JP 02-177496 fails to teach the use of a "surface" or film strip between the roller (20) and the mask (11).

IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" teaches vias in a green ceramic substrate being filled with paste by rubber rollers, a mask and a MYLAR film placed between the mask and the rubber rollers. The MYLAR film is utilized to prevent the paste from sticking to the rubber rollers. The paste is applied as a film over the entire surface of the green sheet.

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified JP 02-177496 process by incorporating a Mylar film between the roller (20) and the screen (11) to prevent sticking of the paste to the roller (20).

JP 02-177496 in combination with IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" fails to teach applying the coating to the "portion of the side facing the mask", i.e. the underside of the film strip.

Sullivan (4,647,524) teaches a transferring method of applying polymer to a printed wiring board. The polymer (14) is applied to the underside of a carrying film (18) and applied to the circuit board by pressure from squeegee 15 (abstract and Fig. 1).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified JP 02-177496 in combination with IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" by applying the paste of the "underside" of the MYLAR sheet as evidenced by Sullivan (4,647,524) with the expectation of achieving similar results.

While the Examiner acknowledges the fact that the coating (14) is different and is not supplied to a mask, it is the Examiner's position that the "supply" of the coating material to the underside of the film is what is relied upon.

With respect to claims 4-7,9 and 16-18, the claims recite applying the paste in a bead, continuous, discontinuous, etc. it is the Examiner's position that the application "type" would be dependent upon the desired end product and would be within the skill of one practicing in the art.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 02-177496 in combination with IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" further in combination with Sullivan (4,647,524) further in combination with Casey et al. (2002/0009539).

Features described above are incorporated here.

JP 02-177496 in combination with IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" further in combination with Sullivan (4,647,524) fails to teach the "surface" or MYLAR film being provided as a spool of rollers.

Casey et al. (2002/0009539) teaches a similar apparatus whereby a roller (32) having a film (24) from a supply roll to a take-up roll located between paste filled vias (16) and a mask (14).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified JP 02-177496 in combination with IBM Technical Disclosure Bulletin, "Roll Extrusion filling of small vias" further in combination with Sullivan (4,647,524) by including a supply and take-up roller for the MYLAR film as evidenced Casey et al. (2002/0009539) with the expectation of achieving similar success as well as the fact of avoiding the need to peel the MYLAR film after the process which would increase production by reducing process time.

While the Examiner acknowledges the fact that the film (24) is utilized for a different purpose (blotting to remove solvent), it is the Examiner's position that the "supply" of the film is what is relied upon and not the function of the film itself.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 02-177496 in combination with Schafer (5,863,620) (a) alone or (b) in combination with JP 02-108,558 and JP 2002-166225.

Features detailed above concerning the teaching of JP 02-177496 is incorporated here.

JP 02-177496 fails to teach applying the coating directly to the roller surface as opposed to the mask.

Schafer (5,863,620) depicts a coating applied to a roller and the transferred to a substrate (abstract and Fig. 1).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified JP 02-177496 process by applying the paste to the roller instead of the mask as evidenced by Schafer (5,863,620) with the expectation of achieving similar success.

JP 02-177496 in combination with Schafer (5,863,620) fails to teach “selectively applying the paste to portions of the roller”.

(a) While the Examiner acknowledges this fact, it is the Examiner’s position that the “application of the paste” whether continuous or discontinuous would be a matter of design choice of one practicing in the art absent a showing of criticality regarding this limitation. It is the Examiner’s position that if the entire area is desired to be coated then the coating would be supplied so as to achieve this result. On the other hand if the coating desired was a “pattern”, the coating would be supplied to achieve this result. Gravure rollers are conventional “patterned rollers” whereby the coating is applied to the roller in a "pattern" and this "pattern" is then transferred to the substrate.

(b) JP 02-108,558 and JP 2002-166225 applying a "pattern" coating on a roller and then transferring that to a substrate.

Therefore, it would have been obvious at the time the invention was made for one of ordinary skill in the art to have modified JP 02-177496 in combination with IBM Technical

Disclosure Bulletin, "Roll Extrusion filling of small vias" further in combination with Sullivan (4,647,524) process by applying the paste on only portion of the roller as evidenced by JP 02-108,558 and JP 2002-166225 with the expectation of achieving the desired result, i.e. coating applied to a "selective" area of the substrate.

***Response to Amendment***

7. Applicant's arguments filed 11/20/07 have been fully considered but they are not persuasive.

Applicant argued that the prior art fails to teach "selectively applying the paste to only portions of the roller"

While the Examiner acknowledges this fact, it is the Examiner's position that the "application of the paste" whether continuous or discontinuous would be a matter of design choice of one practicing in the art absent a showing of criticality regarding this limitation. It is the Examiner's position that if the entire area is desired to be coated then the coating would be supplied so as to achieve this result. On the other hand if the coating desired was a "pattern", the coating would be supplied to achieve this result. Gravure rollers are conventional "patterned rollers" whereby the coating is applied to the roller in a "pattern" and this "pattern" is then transferred to the substrate. Furthermore, both JP 02-108,558 and JP 2002-166225 applying a "pattern" coating on a roller and then transferring that to a substrate.



Applicant argued that the prior art failed to teach applying the coating to the “underside” of the film strip for application to the substrate and that the Sullivan (4,647,524) fails to teach a paste to a screen for roller application.

The Examiner agrees in part. The Examiner has acknowledged this fact above and has taken the position that the “supply” of the coating material to the underside of the film would be applicable to various coating materials and processes including the claimed paste/mask/roller process/apparatus. Furthermore, it has been well settled that attacking individual references by pointing out the differences between the reference and each individual reference is not sufficient to overcome a rejection based on a combination of the references. One cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 231 USPQ 375 (Fed. Cir. 1986). The references must be taken collectively and the test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges*, 783 F.2d 1038. In this particular case, the Sullivan (4,647,524) reference is supplied for the teaching of “locating the coating material” and not for the specific material and/or process utilized.

Applicant again argued that the claimed application of the coating material in dependent claims 4-9 and 16-19 is not a matter of design choice.

The Examiner maintains his position that these limitation are a matter of design choice of one practicing in the art and would be dependent upon the desired end product. Furthermore, applicant has not supplied a showing of unexpected results garnered from these “limitation” and without such a showing the Examiner maintains his position that they are “result effective variables” which can be optimized by one practicing in the art and would be utilized to produce only known expected results.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

//Brian K Talbot//  
Primary Examiner, Art Unit 1792

BKT